

Application No. 10/725,724
Response dated: March 24, 2006
Reply to Final Office Action of January 18, 2006

RD28230-3

REMARKS/ARGUMENTS

In the Final Office Action dated January 18, 2006, the Examiner again rejected claims 1-22. Claims 1-22 remain pending in the application. Reconsideration and allowance of all pending claims are requested.

Claim Rejections under 35 USC 102

The Examiner rejected claims 1, 2, 6, 9, 12, 13, 15, 16, 18-20, and 22 under 35 U.S.C. 102(e) as being anticipated by Hung, U.S. Patent 6208077 (the "077 reference"). The Applicants respectfully traverse this rejection.

With respect to the two pending independent claims 1 and 20, the Examiner's stated position is that the '077 reference discloses an organic electroluminescent light emitting device and a method for its manufacture, the device comprising: a first electrode (see Fig. 3, item 304; column 3 line 57); a second electrode (see Fig. 3, item 308; column 3, line 59); at least one organic light emitting layer (see Fig. 3, item 310, column 3, line 58); and a ceramic output coupler (see Fig. 3, item 306; column 4, lines 1-10; column 5, lines 39-43). The Applicants respectfully disagree and urge that the '077 reference does not disclose a device comprising a ceramic output coupler.

As a first matter, the Applicants note that there may have been some confusion on the Examiner's part about the role and nature of the fluorocarbon polymer layer required as an essential element of the device disclosed in the '077 reference. The Examiner identified item 306 of Figure 3 in the '077 reference as a ceramic output coupler. Item 306 is not a ceramic output coupler, but a thin layer of an organic fluorocarbon polymer. The '077 reference at column 4, lines 27- 37 discloses the following:

After formation of the conductive anode, a polymer layer 306 is formed on the conductive anode 304. This polymer layer is an essential part in this invention. The fluorocarbon polymer is a teflon- like polymer and is substantially formed of carbon and fluorine. It may also contain hydrogen and/or a small amount of impurities such as nitrogen, oxygen, etc. The thickness of the polymer layer is so selected that it would have a full coverage on the underlying conductive layer, and that its low conductivity has no

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negative impacts on device performance. A useful range of the thickness is from 0.2 to 3 nm, preferably 0.4-1 nm.

For a reason or reasons not entirely understood by the Applicants, the Examiner offered that "fluorocarbons are porous insulating materials". The Applicants urge that regardless of the properties ascribed to the polymer layer 306, it cannot represent a ceramic output coupler since it is not a ceramic material at all, but rather it is "a teflon- like polymer and is substantially formed of carbon and fluorine".

As noted, it is the Applicants' position that the '077 reference does not disclose a device comprising a ceramic output coupler. The specification provided by Applicants describes the nature and optical behavior of ceramic output couplers in great detail. For a ceramic material to function as a ceramic output coupler, it must at the very least transmit light (For example, See Figures 1-3, in which the output coupler, item 3, is shown transmitting light; Figure 4 in which ceramic output coupler 123 is labeled "Translucent ceramic"; Figure 9 which shows light 101 passing through a ceramic output coupler 123 and an optional scattering layer 145; and Figure 16 which features a higher index of refraction output coupler layer 223 and a lower index of refraction output coupler layer 323 (logically, for a material to have a measurable index of refraction it must be translucent)).

The '077 reference discloses an organic electroluminescent (EL) device which may under certain conditions include a ceramic layer. At column 4, lines 1-10 the '077 reference discloses an opaque rather than a translucent ceramic substrate (the adjective "opaque" in column 4, line 7 refers to both semiconductor wafers and ceramic wafers):

The substrate[s] 302 are electrically insulated and can either be light transmissive or opaque. The light transmissive property is desirable for viewing the EL emission through the substrate. For applications where the EL emission is viewed through the top electrode, the transmissive characteristic of the support is immaterial, and therefore any appropriate substrate such as opaque semiconductor and ceramic wafers can be used. Of course, it is necessary to provide in these device configurations a light transparent top electrode.

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That the adjective "opaque" in column 4, line 7 of the '077 reference modifies both the terms "semiconductor wafers" and "ceramic wafers" can be gleaned from claim 3 of the '077 reference which recites:

The electroluminescent device of claim 1 wherein when the substrate is opaque, it is formed from a ceramic or semiconducting material

The word "ceramic" appears only twice in the '077 reference, at column 4, line 8, and in claim 3. Assuming claim 3 of the '077 reference has proper antecedent basis for the recitation of an opaque ceramic substrate, then logically the adjective "opaque" at column 4, line 7 must apply to both semiconductor wafers and ceramic wafers. Thus, the '077 reference not only does not disclose a ceramic output coupler, it cannot disclose a ceramic output coupler because ceramic output couplers must transmit light and the '077 reference discloses only opaque ceramic substrates.

Further, the '077 reference does not teach a ceramic output coupler comprised of a ceramic material and a plurality of voids distributed therein. The Examiner has urged that voids are an inherent characteristic of all ceramic materials. Applicants respectfully traverse the Examiner's statement. One of ordinary skill in the art will understand that various ceramics may be made without voids. Such ceramic materials (See "dense ceramic materials") which are essentially free of voids may be made by resolidification of a ceramic melt, hot isostatic pressing, and chemical vapor deposition techniques.

Because the '077 reference neither discloses nor suggests a ceramic output coupler comprised of a ceramic material and a plurality of voids distributed therein, the '077 reference cannot be read to disclose each and every element of originally filed claim 1 or originally filed claim 20. Therefore, the '077 reference cannot anticipate either of claim 1 or claim 20. Accordingly, the Applicants respectfully submit that independent claims 1 and 20 and all claims depending therefrom (claims 2, 6, 9, 12, 13, 15, 16, 18-19, and 22) are allowable. The Examiner is thus respectfully requested to withdraw the rejection of claims 1, 2, 6, 9, 12, 13, 15, 16, 18-20, and 22 under 35 U.S.C. 102(e) as being anticipated by Hung.

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Claim Rejections under 35 USC 103

The Examiner rejected claims 3-5, 7, 8, 14, and 17 under 35 U.S.C. 103(a) as being unpatentable over the '077 reference (Hung). Claims 10 and 11 were rejected under 35 U.S.C. 103(a) as being unpatentable over Hung in view of Schnitzer (Appl. Phys. Lett. 63 (16)). Claim 21 was rejected under 35 U.S.C. 103(a) as being unpatentable over Hung in view of Lai et al. (Improved external efficiency of light emitting diode using organic thin film). Each of these rejections is respectfully traversed. The Applicants note that each of claims 3-5, 7, 8, 10, 11, 14, 17, and 21 depend from independent claim 1 or independent claim 20 which have been shown to recite patentable subject matter. If claims 1 and 20 recite patentable subject matter, all claims dependent therefrom must themselves be allowable. The Applicants thus request that the rejection of claims 3-5, 7, 8, 10, 11, 14, 17 and 21 under 35 U.S.C. 103(a) be withdrawn.

In view of the foregoing arguments the Applicants respectfully request reconsideration and prompt allowance of claims 1-22. If the Examiner believes that a telephonic interview will help speed this application towards issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,



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